

# Notice of Allowability

Application No.

10/019,299

Examiner

Jose H Alcala

Applicant(s)

GOTOH ET AL.

Art Unit

2827

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amended filed on 4/11/03.
2. ☒ The allowed claim(s) is/are 12-15.
3. ☒ The drawings filed on 07 January 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
  - (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.
  - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

- |  |   |
|--|---|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                               | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)          |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 4 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____             |
| 5 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. <u>5,7</u> | 6 <input checked="" type="checkbox"/> Examiner's Amendment/Comment                  |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material   | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
|  | 9 <input type="checkbox"/> Other  |

***Allowable Subject Matter***

**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In the title:

Cancel claim 16, for being a nonelected invention.

2. Authorization for this examiner's amendment was given in a telephone interview with Bill Player on 5/06/03.

***Reasons for Allowance***

3. The prior art teaches semiconductor components attached to a substrate with solder balls and having an underfill between them, but fails to teach, disclose, or suggest, either alone or in combination, at least on claim 12, the semiconductor package device having underfilling material which consists essentially of a one-pack type thermosetting urethane composition comprising: a urethane prepolymer having a terminal isocyanate group, which is obtained by reacting a polyol with an excessive amount of a polyisocyanate, wherein said urethane prepolymer is a mixture of a urethane prepolymer having a terminal isocyanate group comprising a hydrocarbon

polyol as a polyol and a urethane prepolymer having a terminal isocyanate group comprising a polyoxyalkylene polyol in a weight ratio of 9:1 to 2:8, and a fine powder-coated curing agent comprising a curing agent which is in a solid state at room temperature and surface active sites of which are covered with a fine powder. Therefore, dependent claims 13-15 are also allowed.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references teach some of the elements of the instant claimed invention, such as semiconductor elements attached to a substrate by solder balls and having underfilling between them: Berger (US Patent 4,499,149), Jacobs (US Patent 5,929,512), Jacobs (US Patent 6,492,204), Kawai (US Patent 6,406,990), George et al. (US Patent 5,386,624), Chase et al. (US Patent 5,390,082), Lin et al. (US Patent 5,450,283), Call et al. (US Patent 5,533,256), Tsukagoshi et al. (US Patent 5,804,882), Bronson et al. (US Patent 5,288,944), Frey et al. (US Patent 5,249,101), Omoya et al. (US Patent 5,641,996), Morris (US Patent 6,507,101), Akram et al. (US Patent 6,534,858), Akram (US Patent 6,121,070), Akram et al. (US Patent 6,252,308) and Lehner et al. (US Patent 6,037,043).

Application/Control Number: 10/019,299  
Art Unit: 2827


Page 4

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose H Alcala whose telephone number is (703) 305-9844. The examiner can normally be reached on Monday to Friday.

6. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

7. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JHA  
May 19, 2003

  
**DAVID E. GRAYBILL**  
**PRIMARY EXAMINER**